IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Appellant(s):	Russell M. Richman
Case:	6
Serial No.:	10/602,539
Filing Date:	June 24, 2003
Group:	2618
Examiner:	Lee Nguyen
Title:	Method and System for Wireless Communication Among Integrated Circuits Within an Enclosure

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REPLY BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appellant hereby replies to the Examiner's Answer, mailed January 8, 2009 (referred to hereinafter as "the Examiner's Answer"), in an Appeal of the final rejection of claims 1-10 and 14-21 in the above-identified patent application.

REAL PARTY IN INTEREST

A statement identifying the real party in interest is contained in Appellant's Appeal Brief.

RELATED APPEALS AND INTERFERENCES

A statement identifying related appeals is contained in Appellant's Appeal Brief.

STATUS OF CLAIMS

A statement identifying the status of the claims is contained in Appellant's Appeal Brief.

STATUS OF AMENDMENTS

A statement identifying the status of the amendments is contained in Appellant's Appeal Brief.

SUMMARY OF CLAIMED SUBJECT MATTER

A Summary of the Invention is contained in Appellant's Appeal Brief.

STATEMENT OF GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A statement identifying the grounds of rejection to be reviewed on appeal is contained in Appellant's Appeal Brief.

CLAIMS APPEALED

A copy of the appealed claims is contained in an Appendix of Appellant's Appeal Brief.

ARGUMENT

In the Examiner's Answer, the Examiner presented his summary of the invention and asserted that "the transmission of discrete frequencies is just an example as taught by Metze" (col. 4, lines 48-57, and col. 5, lines 17-23), which can be selectively applied to other high bandwidth protocols of the IEEE standard (col. 5, lines 17-23). The Examiner asserts that, consequently, the notion that Metze teaches away from the present invention is not true because similar to Metze, the claimed invention selects between IEEE 802.11a, Bluetooth or ultra-wide bandwidth (UWB) in the IEEE standard and that, as a result, the selection of UWB among other protocols in the IEEE standard is just an intended use of selecting among the protocols. The Examiner claims that the evidence can be found in the cancellation of dependent claims 11-13 and the specification of the present invention (page 4, lines 18-25).

First, regarding the Examiner's assertion that "the transmission of discrete frequencies is just an example as taught by Metze," which can be selectively applied to other high bandwidth protocols of the IEEE standard, Appellant maintains that Metze does ***not*** disclose or suggest "*ultra wide bandwidth*," as defined in the art.

As previously asserted by Appellant, Metze is clearly limited to transmission and reception over ***discrete*** carrier frequencies. See, for example, the discussion at col. 4, lines 48-53, where it is noted that if the MIMIC 16 labeled T1/R1 (in FIG. 1) transmits at (discrete) frequency f2 and receives at (discrete) frequency f1 and the MIMIC 16 labeled T2/R2 transmits at (discrete) frequency f1 and receives at (discrete) frequency f2, data can be readily transmitted between the CPUs 14 labeled A1 and A2.

Metze does not disclose or suggest, however, "*ultra wide bandwidth*," as defined in the art; Metze's teaching of the use of *discrete* carrier frequencies, such as f1 and f2, for transmission and reception between two integrated circuits ***teaches away*** from the present invention. Thus, a person of ordinary skill in the art would not even look to Larrick et al. in the manner suggested by the Examiner. Appellant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness for at least the reason that there exists no motivation to combine the references. M.P.E.P. §2143. Again, this was **not** addressed at all by the Examiner in the present or previous Office Action. To summarize, a person of ordinary skill in the art, when presented with the teachings of Metze with respect to *discrete* carrier frequencies, would *not* look to Larrick et al. for the UWB transmissions employing a broad frequency range.

Second, regarding the Examiner's assertion that "the selection of UWB among other protocols in the IEEE standard is just an intended use of selecting among the protocols," Appellant maintains that the *selection of UWB* is *not* an intended use, as would be apparent to a person of ordinary skill in the art.

Finally, regarding the alleged evidence cited by the Examiner, Appellant notes that the specification teaches:

> A variety of protocols and technologies can be utilized for the wireless interconnection links, such as IEEE 802.11a, UWB or Bluetooth. In addition, new technologies for ultra-wide bandwidths are being standardized by organizations such as the IEEE, including the IEEE 802.15 Working Group for Wireless Personal Area Networks. All of these technologies are designed for communications between self-contained components, e.g., computers, peripherals, and high-definition televisions. As previously indicated, such wireless technologies exhibit extremely high bandwidths at relatively short distances and are thus suitable for interconnecting IC devices in accordance with the present invention.
> (Page 4, lines 18-25.)

The cited text teaches a variety of protocols and technologies. Appellant maintains that the cited text provides *no* evidence that the selection of UWB is just intended use. Similarly, Appellant maintains that the cited claims provide *no* evidence that the selection of UWB is just intended use.

In the Examiner's Answer, the Examiner asserts that, if the pin antenna of Cheung generates noise and not transmitting signal, so does the pin antenna of the present invention because both antennas of Cheung and claims 3 and 21 of the present invention are pins of an IC circuit. The Examiner asserts that, if Cheung teaches away from the present invention, so do claims 3 and 21 of the present invention.

Contrary to the Examiner's assertion, the fact that the pin antenna of Cheung generates noise and does not transmit a signal does *not* infer that the pin antenna of the present invention generates noise and does not transmit a signal. Claims 3 and 21 explicitly require *transmitting a signal using a first antenna associated with said first integrated circuit device* in accordance with an ultra wide band wireless standard; and *receiving said signal using a second antenna associated with said second integrated circuit* device within said enclosure, *wherein at least one of said first and second antennas is a pin on said first or second integrated circuit device*. Thus, claims 3 and 21 require *receiving or transmitting a signal using an antenna that is a pin.*

Also, contrary to the Examiner's assertion, the fact that Cheung teaches away from the present invention does *not* infer that claims 3 and 21 teach away of the present invention; to the contrary, claims 3 and 21 recite features compatible with the present invention.

As noted in the Appeal Brief, dependent claims 3 and 21 require that antennas are pins on the integrated circuit devices. The Examiner asserts that Cheung et al., col. 1, lines 56-59; and col. 5, lines 44-49, teaches that the pins of an IC circuit can be used to provide different functions. The discussion by Cheung et al. of antennas, however, are the *unintended* result of unused pins generating *noise*. Thus, such pins are not transmitting a *signal* that is *received by* a second antenna. If anything, Cheung et al. ***teaches away*** from the present invention.

Appeal Brief Arguments

Independent Claims 1, 14 and 17

Independent claims 1, 14 and 17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Metze in view of Larrick et al. The Examiner acknowledges that Metze does not explicitly state that the signal is transmitted using the first antenna in accordance with an ultra wide band wireless standard. The Examiner asserts, however, that it would be obvious to include different short-range standards into the system of Metze. Appellant asserts, however, that it would not have been obvious to include the ultra wide bandwidth techniques described by the present invention, as discussed more fully below.

The Examiner notes that Metze suggests that wide bandwidth MIMICs operating at well above 100 GHz are commercially available (citing col. 3, lines 62-64). Metze, however, explicitly states that such millimeter-wave data communications would be used for "higher modulation bandwidth…and lower costs." *Id.* at lines 59-62.

Furthermore, the terms "high bandwidth" or "wide bandwidth" and "*ultra wide bandwidth," are* ***not*** *technically equivalent*, as would be well understood by a person of ordinary skill in the art. While Metze may teach that "other frequencies may be utilized and still fall within the standard I.E.E.E. definition of 'millimeter-wave' for purposes of this invention," Metze does ***not*** disclose or suggest "*ultra wide bandwidth*," as defined in the art.

As previously asserted by Appellant, Metze is clearly limited to transmission and reception over ***discrete*** carrier frequencies. See, for example, the discussion at col. 4, lines 48-53, where it is noted that if the MIMIC 16 labeled T1/R1 (in FIG. 1) transmits at (discrete) frequency f2 and receives at (discrete) frequency f1 and the MIMIC 16 labeled T2/R2 transmits at (discrete) frequency f1 and receives at (discrete) frequency f2, data can be readily transmitted between the CPUs 14 labeled A1 and A2.

Ultra wide band communications, on the other hand, is a *wideband* wireless technology, rather than a *narrowband* technology, that depends on encoding the information on a number of narrow carrier frequencies. Using multiple frequency bands, the transmitted information is effectively spread across a wide range of frequencies. See, e.g., http://en.wikipedia.org/wiki/Ultra_wideband. This has **not** been addressed by the Examiner.

As discussed in http://en.wikipedia.org/wiki/Ultra_wideband, "a significant difference between traditional radio transmissions and UWB radio transmissions is that

traditional transmissions transmit information by varying the power/frequency/and or phase in distinct and controlled frequencies while *UWB transmissions transmit information by generating radio energy at specific times with a broad frequency range*." (Emphasis added.) Thus, *by definition*, UWB transmissions *generate radio energy at specific times with a broad frequency range, i.e., the transmitted information is effectively spread across a wide range of frequencies.*

This was asserted in Appellant's prior responses, but still not addressed at all by the Examiner in the present or previous Office Action. To be clear, the Examiner has never addressed the distinction between transmissions over *discrete* carrier frequencies, and the UWB transmissions of the present invention employing a *broad frequency range*.

Metze's teaching of the use of *discrete* carrier frequencies, such as f1 and f2, for transmission and reception between two integrated circuits ***teaches away*** from the present invention. Thus, a person of ordinary skill in the art would not even look to Larrick et al. in the manner suggested by the Examiner. Appellant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness for at least the reason that there exists no motivation to combine the references. M.P.E.P. §2143. Again, this was **not** addressed at all by the Examiner in the present or previous Office Action. To summarize, a person of ordinary skill in the art, when presented with the teachings of Metze with respect to *discrete* carrier frequencies, would not look to Larrick et al. for the UWB transmissions employing a broad frequency range.

Thus, Metze and Larrick et al., alone or in combination, do not disclose or suggest transmitting a signal using a first antenna associated with said first integrated circuit device in accordance with an ultra wide band wireless standard, as required by independent claim 1, does not disclose or suggest transmitting a signal using an antenna associated with said integrated circuit device in accordance with an ultra wide band wireless standard to a second integrated circuit device within said enclosure, as required by independent claim 14, and does not disclose or suggest at least one circuit for transmitting a signal in accordance with an ultra wide band wireless standard, as required by independent claim 17, as amended.

Appellant respectfully requests the withdrawal of the rejection of independent claims 1, 14 and 17.

Dependent Claims

Claims 2-10, 15-16, and 18-21 are dependent on independent claims 1, 14 and 17, respectively, and are therefore patentably distinguished over Metze, Larrick et al., Cheung et al., Nozawa et al. and Ghaem, alone or in any combination, because of their dependency from independent claims 1, 14 and 17 for the reasons set forth above, as well as other elements these claims add in combination to their base claim.

Dependent claims 3 and 21 require that antennas are pins on the integrated circuit devices. The Examiner asserts that Cheung et al., col. 1, lines 56-59; and col. 5, lines 44-49, teaches that the pins of an IC circuit can be used to provide different functions. The discussion by Cheung et al. of antennas, however, are the *unintended* result of unused pins generating *noise*. Thus, such pins are not transmitting a *signal* that is *received by* a second antenna. If anything, Cheung et al. ***teaches away*** from the present invention.

All of the pending claims, i.e., claims 1-10 and 14-21, are in condition for allowance and such favorable action is earnestly solicited.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The attention of the Examiner and the Appeal Board to this matter is appreciated.

Respectfully submitted,

Date: February 4, 2008

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APPENDIX

1. A method for wireless communication among first and second integrated circuit devices within an enclosure, said method comprising the steps of:

transmitting a signal using a first antenna associated with said first integrated circuit device in accordance with an ultra wide band wireless standard; and

receiving said signal using a second antenna associated with said second integrated circuit device within said enclosure.

2. The method of claim 1, wherein said first and second antennas are incorporated in said first and second integrated circuit devices.

3. The method of claim 2, wherein at least one of said first and second antennas is a pin on said first or second integrated circuit device.

4. The method of claim 2, wherein at least one of said first and second antennas is fabricated on said first or second integrated circuit device.

5. The method of claim 1, wherein said signal comprises one or more channels.

6. The method of claim 1, wherein one or more signals are transmitted by said first antenna using one or more associated sub-carrier frequencies.

7. The method of claim 1, wherein said signal is time-division multiplexed.

8. The method of claim 1, wherein said signal is frequency-division multiplexed.

9. The method of claim 1, wherein said signal is spatially multiplexed.

10. The method of claim 1, wherein said enclosure is a housing of a self-contained device.

11. (Cancelled).

12. (Cancelled).

13. (Cancelled).

14. A method for wireless communication by an integrated circuit device within an enclosure, said method comprising the step of:

transmitting a signal using an antenna associated with said integrated circuit device in accordance with an ultra wide band wireless standard to a second integrated circuit device within said enclosure.

15. The method of claim 14, wherein said signal comprises one or more channels.

16. The method of claim 14, wherein said enclosure is a housing of a self-contained device.

17. An integrated circuit device within an enclosure, comprising:

at least one circuit for transmitting a signal in accordance with an ultra wide band wireless standard; and

an antenna for transmitting said signal in accordance with said ultra wide band wireless standard to a second integrated circuit device within said enclosure.

18. The integrated circuit device of claim 17, wherein said signal comprises one or more channels.

19. The integrated circuit device of claim 17, wherein said enclosure is a housing of a self-contained device.

20. The integrated circuit device of claim 17, wherein said antenna is incorporated in said integrated circuit device.

21. The integrated circuit device of claim 17, wherein said antenna is at least one pin of said integrated circuit device.

EVIDENCE APPENDIX

There is no evidence submitted pursuant to § 1.130, 1.131, or 1.132 or entered by the Examiner and relied upon by appellant.

RELATED PROCEEDINGS APPENDIX

There are no known decisions rendered by a court or the Board in any proceeding identified pursuant to paragraph (c)(1)(ii) of 37 CFR 41.37.